

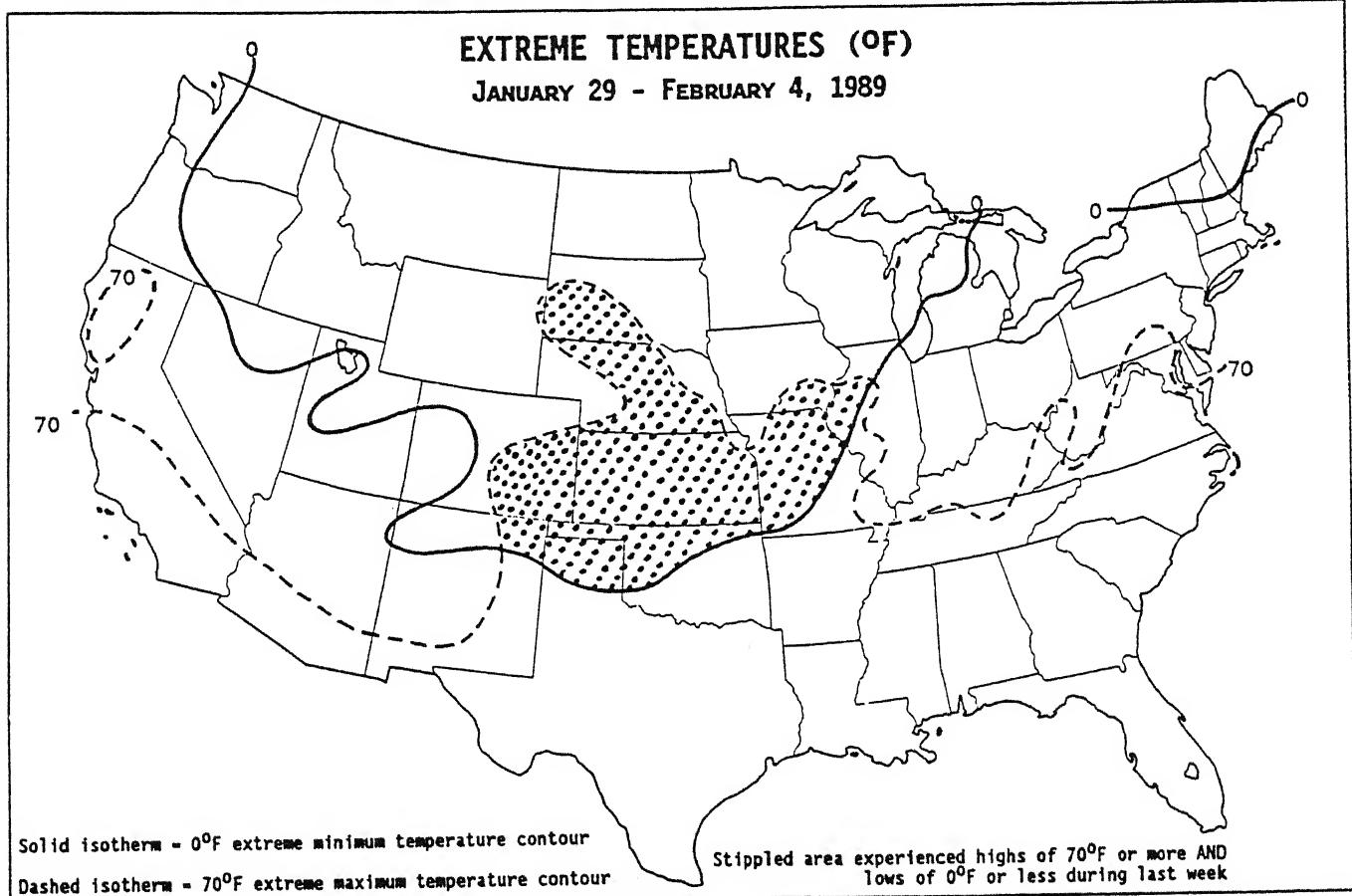
CONTAINS:
JANUARY 1989
U.S. CLIMATE
SUMMARY

WEEKLY CLIMATE BULLETIN

No. 89/05

Washington, DC

February 4, 1989



SHARPLY CONTRASTING TEMPERATURES PREVAILED ACROSS MUCH OF THE LOWER 48 STATES LAST WEEK. AFTER UNSEASONABLY MILD WEATHER COVERED MOST OF THE COUNTRY EARLY IN THE WEEK, A BLAST OF BITTERLY COLD ARCTIC AIR INVADED THE NORTH-CENTRAL U.S. AND READINGS PLUMMETED BELOW ZERO BY THE WEEK'S END. DIFFERENCES BETWEEN WEEKLY EXTREME MAXIMUM AND MINIMUM TEMPERATURES EXCEEDED 95°F AT VALENTINE, NE (70°F ON 1/31/89, -26°F ON 2/3/89).

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

Editor:	David Miskus
Associate Editor:	Paul Sabol
Contributors:	Jeffrey D. Logan Keith W. Johnson Vernon L. Patterson
Graphics:	Robert H. Churchill Richard J. Tinker Michael C. Falciani

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

To receive copies of the Bulletin or change mailing address, write to:

Climate Analysis Center, W/NMC53
Attention: Weekly Climate Bulletin
NOAA, National Weather Service
Washington, DC 20233
Phone: (301) 763-8071

GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF FEBRUARY 4, 1989

[Approximate duration of anomalies is in brackets]

1. Alaska:

BITTER COLD PREVAILS.

Bitterly cold weather, with temperatures as much as 16.4°C (29.5°F) below normal, persisted across most of Alaska [3 weeks].

2. North Central United States:

ARCTIC BLAST INVADES REGION.

Extremely cold arctic air dropped temperatures on Tuesday by as much as 40°C (72°F) with winds in excess of 45 meters per second (100 miles per hour) in Montana [Episodic Event].

3. Eastern United States and adjacent Canada:

MILD, DRY AIR PREDOMINATES.

Above normal temperatures, approaching 9.3°C (16.7°F), dominated the East last week [3 weeks]. Dryness developed in many parts of the area as little or no precipitation fell [4 weeks].

4. Uruguay and Northern Argentina:

AREA REMAINS DRY AND WARM.

Less than 19.4 mm (0.76 inches) of precipitation fell as dryness persisted [32 weeks]. Unusually warm conditions continued with temperatures up to 4.4°C (7.9°F) above normal [10 weeks].

5. Europe and the Middle East:

DRYNESS PERSISTS, WARM CONDITIONS DEVELOP.

Little or no precipitation fell across Europe and the Middle East as dryness remained [9 weeks]. Unusually mild weather prevailed over most of the Continent with temperatures up to 9.0°C (16.2°F) above normal [4 weeks].

6. South Central Siberia:

MILD CONDITIONS LINGER.

The mild weather regime, with temperatures reaching 16.1°C (29.0°F) above normal, persisted in the region around Lake Baykal [17 weeks].

7. Eastern China; South Korea; Southern Japan:

WETNESS DIMINISHES.

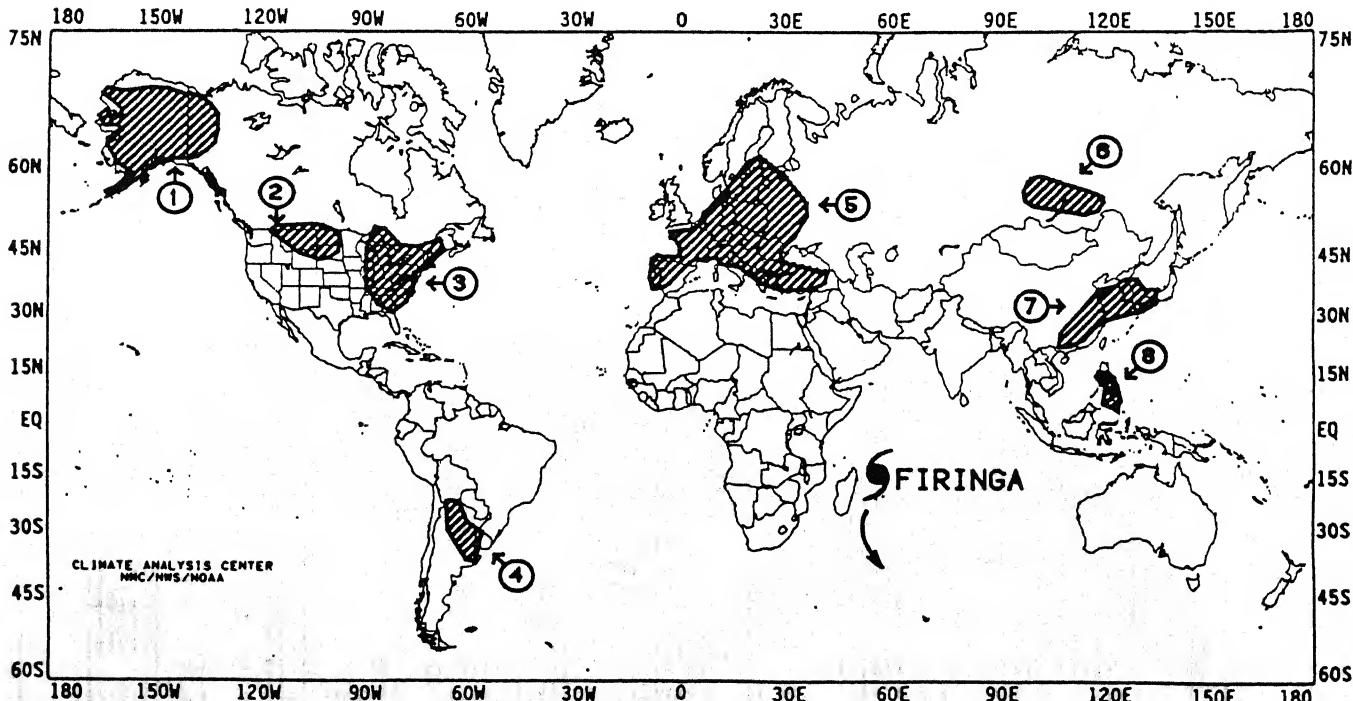
Isolated showers, with up to 31.6 mm (1.24 inches) of precipitation were reported at some stations; however, little or no precipitation occurred across most of the region [Ending at 5 weeks].

8. Philippines:

HEAVY RAINS OCCUR.

Heavy monsoon rains, approaching 325.0 mm (12.80 inches), fell across the Philippines this past week and caused flooding and landslides [Episodic Event].

(NOTE: Text precipitation amounts and temperature departures are this week's values).



Approximate locations of the major anomalies and events described above are shown on this map. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, longer term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF JANUARY 29 THROUGH FEBRUARY 4, 1989.

A major change in the upper air pattern brought a bitterly cold air from Alaska and northwestern Canada southward into the northwestern and north-central U.S. near mid-week, displacing the unseasonably mild weather that had prevailed in the region earlier. Towards the end of the week, frigid conditions had pushed as far south as southern Texas while the cold front became stalled across the southern Atlantic and central Gulf states. Only Florida, Georgia, and South Carolina remained abnormally warm at week's end. A Pacific storm system, coupled with the bitterly cold air, dumped more than a foot of snow in portions of the Cascades and blanketed the western and coastal sections of Washington and Oregon with moderate snow as Olympia, WA, Salem, OR, and Eugene, OR recorded 6, 5, and 3 inches of snow, respectively. Farther south and east, an upper level low pressure center produced heavy snows in the Sierra Nevada Mountains, the Wasatch Range, and the central Rockies as several locations accumulated two to four feet of snow. Behind the cold front, from southeastern Texas northeastward to New York, sleet, freezing rain, and snow glazed much of the area, while showers and thunderstorms preceding the front drenched portions of the Southeast. Subzero temperatures and gusty winds created extremely dangerous wind chills (-60° to -90°F) in the northern Rockies and Great Plains. A new record high pressure for North America was set on Tuesday when Northway, AK reported 31.74" of mercury, eclipsing the old mark of 31.53" at Mayo, Canada. In less than 5 months, both the highest and lowest barometric pressures in the western hemisphere have been broken (Lowest: Hurricane Gilbert's central pressure of 26.13" in mid-September, 1988).

While most of the nation measured some precipitation last week, the greatest amounts were observed in the lower Mississippi, western Tennessee, and southern Ohio Valleys (see Table 1). According to the River Forecast Centers, between 2 and 4

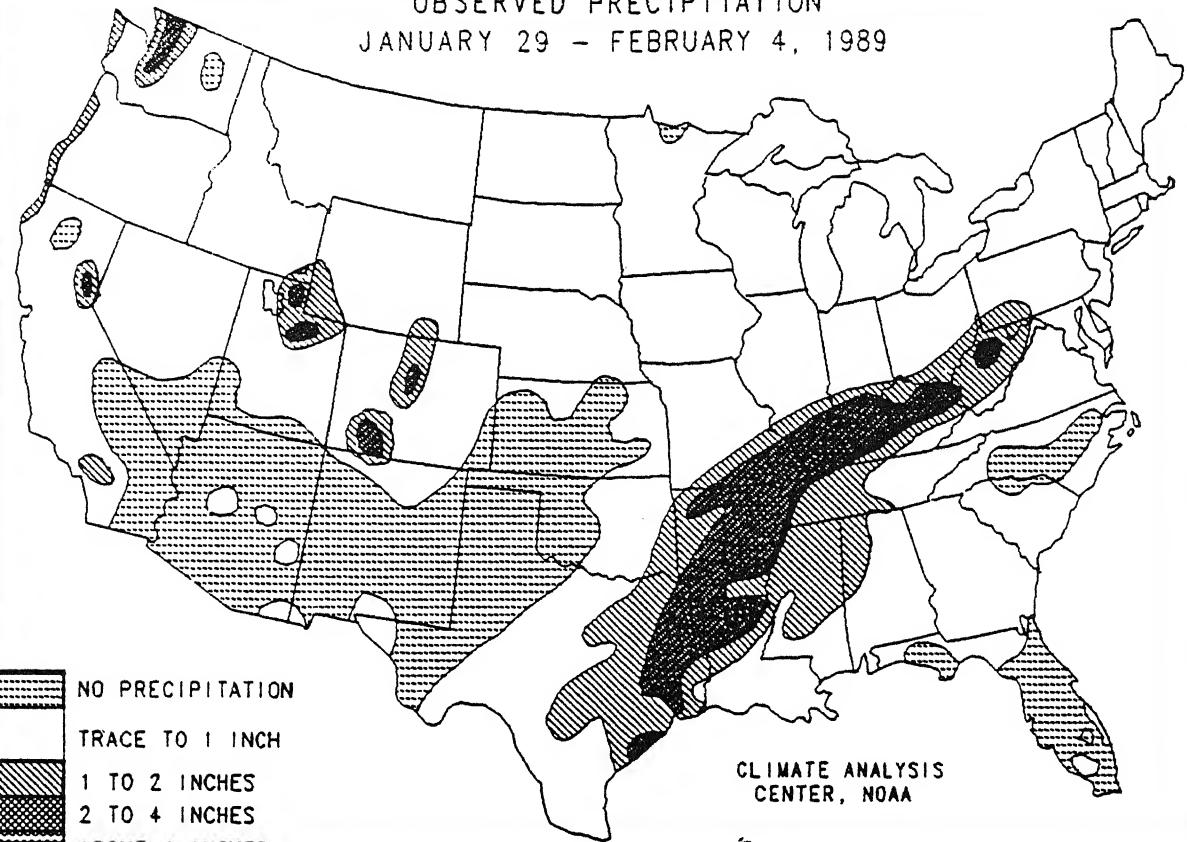
inches of precipitation fell from southeastern Texas northeastward to central West Virginia, with up to 4.5 inches in east-central Kentucky (see Figure 1). Farther north, lake-enhanced snows covered parts of the western Great Lakes snow-belt regions. Heavy showers soaked much of the Hawaiian Islands. Light to moderate totals were found along the Pacific Coast, in the northern two-thirds of the Intermountain West and Rockies, the northern and southern Great Plains, and throughout most of the country east of the Mississippi River. Little or no precipitation fell from southern California eastward to Missouri, extreme northern Montana, along the central and eastern Gulf Coast, and across most of the Carolinas.

With cold air covering most of the U.S. by Saturday, unseasonably warm weather was confined to the extreme southeastern corner of the nation. Earlier in the week, however, readings in the seventies extended into South Dakota, Illinois, and Pennsylvania, while parts of Kansas and Virginia topped the 80°F mark as more than a 150 stations tied or set new daily maximum temperatures (see Figure 2). The greatest positive temperature departures (between +13° and +17°F) occurred from the eastern Gulf Coast northward to the central Appalachians (see Table 2). In sharp contrast, temperatures averaged more than 20°F below normal in the northern Rockies and Great Plains (see Table 3). Dozens of stations in the West and Great Plains tied or established new daily minimum temperatures during the week as subzero readings dipped into the Texas Panhandle (see Figure 3). Extremely dangerous wind chills (less than -30°F) were common across the entire north-central U.S. (see Figure 4). Frigid conditions continued in Alaska, but temperatures moderated as the week progressed, especially in the northwestern portion of the state. For example, temperatures at Barrow, AK averaged more than 30°F ABOVE normal during the first four days of February.

TABLE 1. Selected stations with more than two inches of precipitation for the week.

Station	Amount (In)	Station	Amount (In)
Kokee, Kauai, HI	5.88	Shreveport, LA	2.79
Monroe, LA	4.09	Houston/Ellington AFB, TX	2.57
Longview/Gregg Co., TX	3.47	Adak, AK	2.47
West Plains, MO	3.43	Jackson, KY	2.46
Palacios, TX	3.30	Honolulu, Oahu, HI	2.30
Cape Girardeau, MO	3.26	Jonesboro, AR	2.30
Bowling Green, KY	3.04	Evansville, IN	2.26
Shreveport/Barksdale AFB, LA	2.97	Louisville/Standiford, KY	2.20
Blytheville AFB, AR	2.90	Hopkinsville/Campbell AAF, TN	2.09
Paducah, KY	2.84	Little Rock, AR	2.07
Kahului, Maui, HI	2.84	Harrison, AR	2.04

OBSERVED PRECIPITATION
JANUARY 29 - FEBRUARY 4, 1989



DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL ($^{\circ}$ F)
JAN 29 - FEB 4, 1989

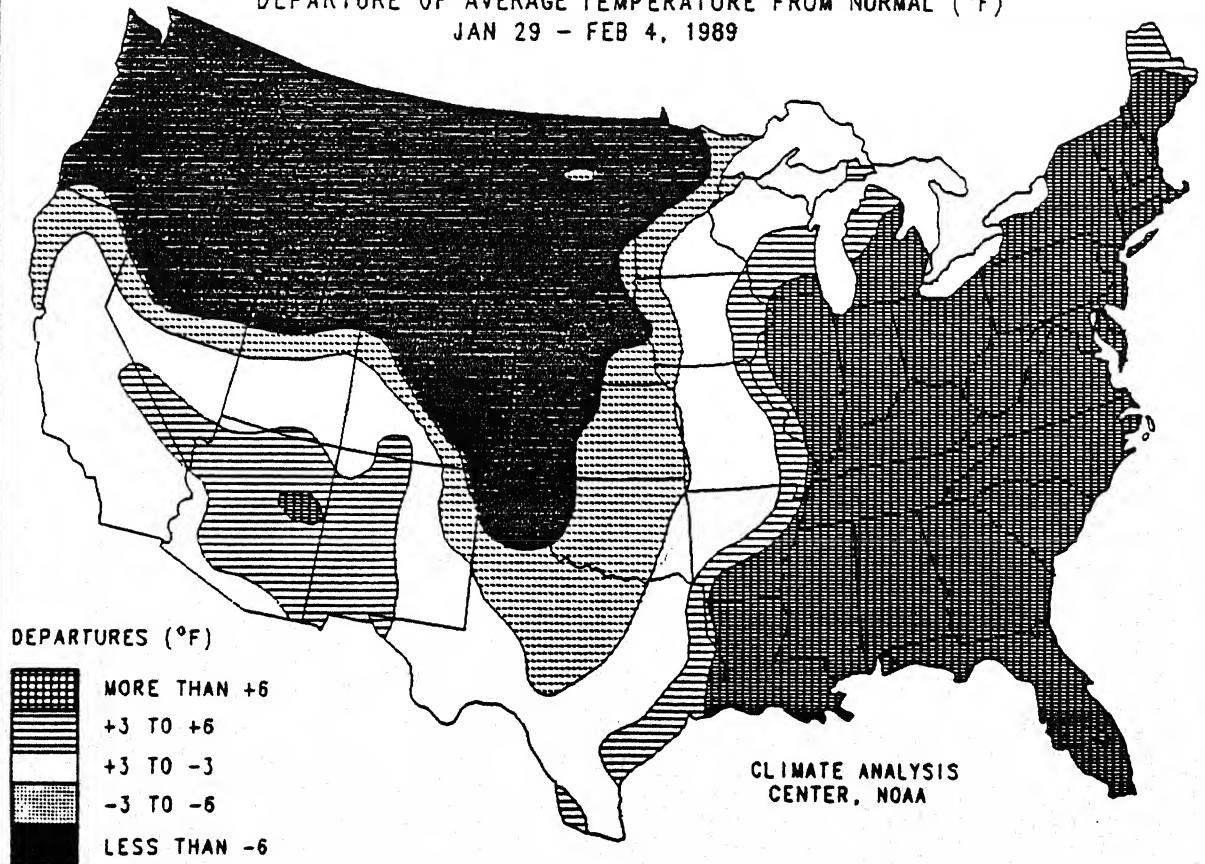


TABLE 2. Selected stations with temperatures averaging 12.0°F or more ABOVE normal for the week.

<u>Station</u>	<u>TDepNml</u>	<u>AvgT($^{\circ}\text{F}$)</u>	<u>Station</u>	<u>TDepNml</u>	<u>AvgT($^{\circ}\text{F}$)</u>
Charlotte, NC	+17.1	58.1	Washington/Dulles, VA	+13.7	43.7
Roanoke, VA	+16.8	52.5	Charleston, WV	+13.5	46.8
Bluefield, WV	+16.8	48.3	Martinsburg, WV	+13.5	44.1
Charleston, SC	+16.3	64.3	Macon, GA	+13.4	60.4
Florence, SC	+15.8	61.0	Greenville, SC	+13.4	54.9
Raleigh/Durham, NC	+15.7	55.4	Apalachicola, FL	+13.2	66.3
Norfolk, VA	+15.7	55.4	Bristol, TN	+13.1	48.6
Hampton/Langley AFB, VA	+15.5	54.6	Cape Hatteras, NC	+13.0	57.6
Beckley, WV	+15.5	45.9	Brunswick, GA	+12.9	64.4
Savannah, GA	+15.3	64.9	Columbus, GA	+12.9	59.6
Lynchburg, VA	+15.1	50.3	Morgantown, WV	+12.9	42.4
Jackson, KY	+15.1	48.7	Muscle Shoals, AL	+12.8	53.4
Hickory, NC	+15.0	53.7	Lexington, KY	+12.8	44.7
Greensboro, NC	+15.0	52.7	Jacksonville, FL	+12.7	67.0
Richmond, VA	+15.0	51.8	Augusta, GA	+12.7	58.2
Seymour-Johnson AFB, NC	+14.8	58.7	Nashville, TN	+12.7	50.4
Wilmington, NC	+14.7	60.5	Chattanooga, TN	+12.6	52.0
New Bern, NC	+14.3	58.5	Knoxville, TN	+12.3	51.1
Columbia, SC	+14.2	59.4	Huntington, WV	+12.3	45.8
Atlanta, GA	+14.2	56.8	Parkersburg, WV	+12.0	43.5
Asheville, NC	+14.1	51.3	Wilkes-Barre, PA	+12.0	37.2
Tallahassee, FL	+13.7	65.6	Bradford, PA	+12.0	31.5
Athens, GA	+13.7	56.7			

TABLE 3. Selected stations with temperatures averaging more than 12.0°F BELOW normal for the week.

<u>Station</u>	<u>TDepNml</u>	<u>AvgT($^{\circ}\text{F}$)</u>	<u>Station</u>	<u>TDepNml</u>	<u>AvgT($^{\circ}\text{F}$)</u>
Big Delta, AK	-29.7	-32.0	Juneau, AK	-16.3	8.2
Northway, AK	-27.6	-44.3	Burns, OR	-16.0	14.5
Bettles, AK	-25.9	-34.4	Worland, WY	-15.8	0.7
Gulkana, AK	-25.2	-28.4	Missoula, MT	-15.8	8.4
Helena, MT	-23.5	-1.8	Rapid City, SD	-15.5	7.4
Kenai, AK	-23.2	-10.1	Lander, WY	-15.4	6.8
Cordova/Mile 13, AK	-23.0	1.1	Lewiston, ID	-15.4	19.5
Fairbanks, AK	-22.4	-31.1	Valdez, AK	-15.3	4.5
Bozeman, MT	-22.1	-3.9	Pendleton, OR	-15.2	20.4
Cut Bank, MT	-21.9	-4.1	Iliamna, AK	-14.6	1.6
Casper, WY	-21.5	2.7	Boise, ID	-14.6	18.1
Yakutat, AK	-21.0	4.6	Kalispell, MT	-14.5	8.0
Great Falls, MT	-20.8	1.9	Walla Walla, WA	-14.5	20.6
Butte, MT	-20.7	-2.6	Denver, CO	-13.9	17.3
Billings, MT	-20.5	3.7	Idaho Falls, ID	-13.8	7.0
Talkeetna, AK	-19.5	-7.8	Bellingham, WA	-13.6	25.1
Sidney, NE	-19.5	6.8	Pocatello, ID	-13.1	13.2
Anchorage, AK	-19.4	-4.5	King Salmon, AK	-13.0	0.7
Homer, AK	-18.7	4.2	Sitka, AK	-13.0	18.6
Sheridan, WY	-18.6	3.8	Glasgow, MT	-12.9	-2.6
Miles City, MT	-18.2	-1.3	Annette Island, AK	-12.8	21.7
Havre, MT	-17.8	-2.6	Dickinson, ND	-12.5	0.7
Akron, CO	-17.2	10.3	Williston, ND	-12.4	-2.6
Cheyenne, WY	-17.0	10.5	North Platte, NE	-12.2	11.6
Scottsbluff, NE	-16.8	9.8	Redmond, OR	-12.2	20.9

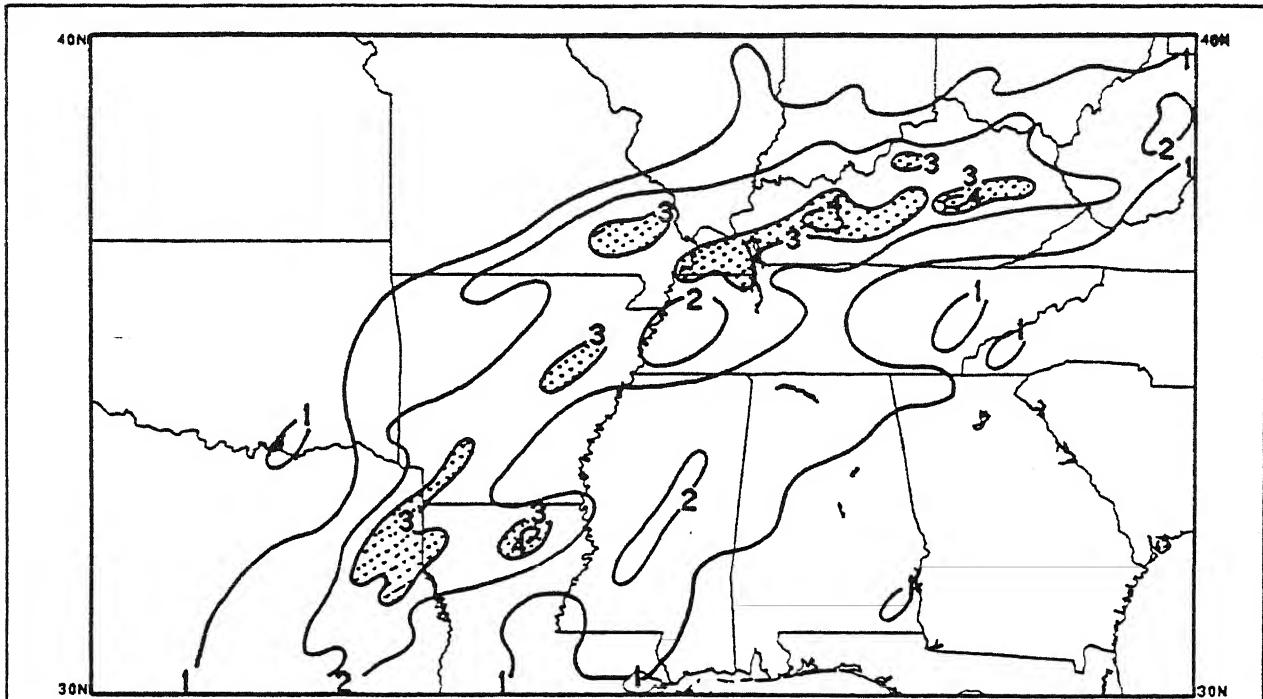


Figure 1. Total precipitation (inches) during Jan. 29-Feb. 4, 1989 based upon the River Forecast Centers data network. Isopleths are drawn only for 1, 2, 3, and 4 inches, and stippled areas are more than 3 inches.

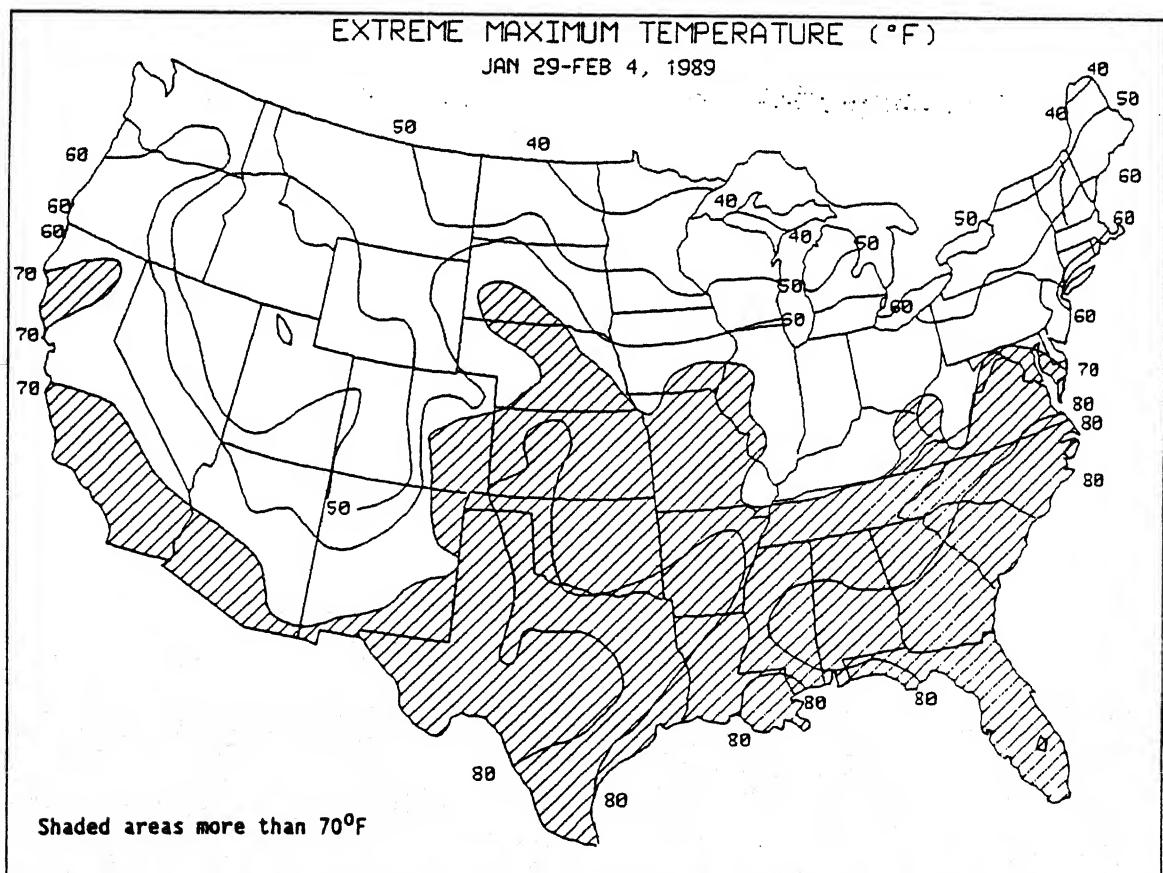


Figure 2. Extreme maximum temperatures ($^{\circ}$ F) during Jan. 29-Feb. 4, 1989. Shaded areas are greater than 70° F. Spring-like temperatures, with highs in the seventies and eighties, reached into the central Great Plains and mid-Atlantic early in the week before the onset of bitterly cold arctic air.

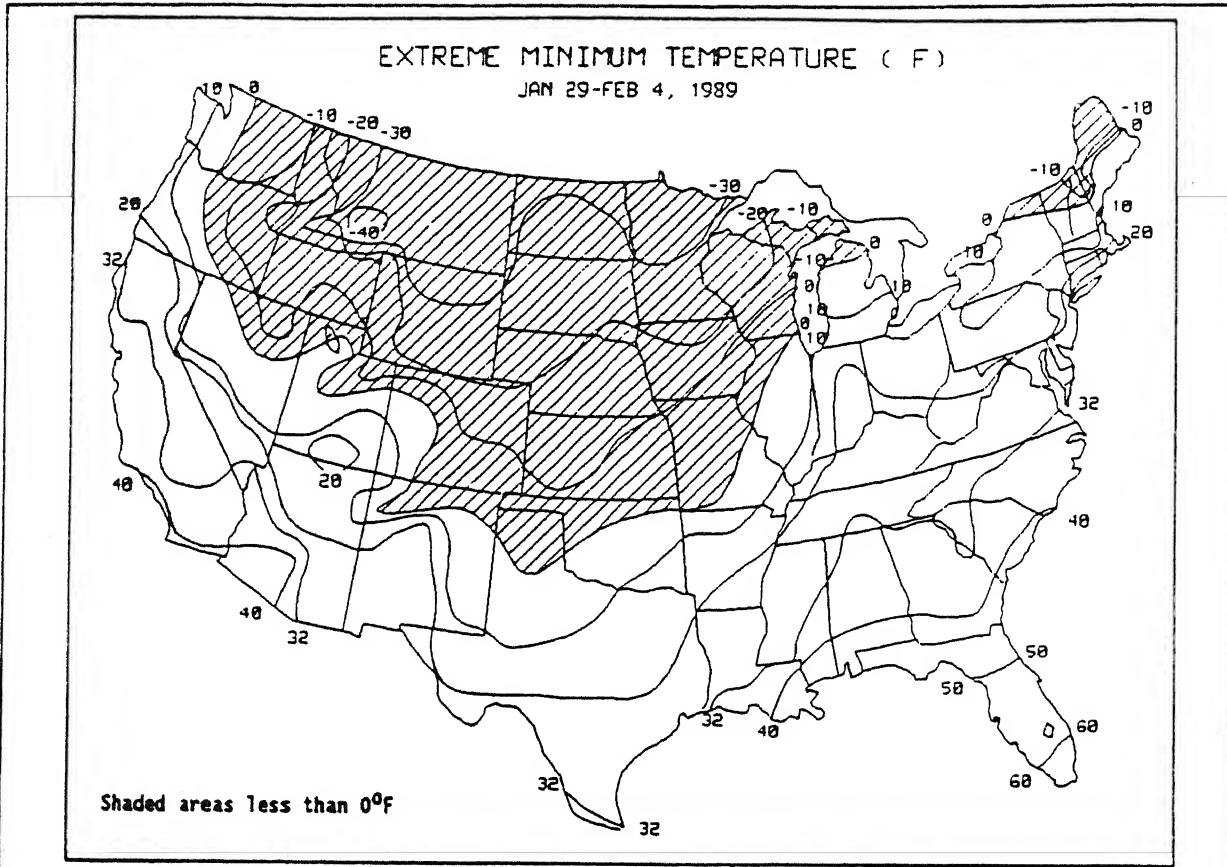


Figure 3. Extreme minimum temperatures ($^{\circ}$ F) during Jan. 29-Feb. 4, 1989. Frigid weather from Alaska and northwestern Canada dove southward into the northwestern and north-central U.S. last week as subzero readings extended into the Texas Panhandle. Lows plummeted below -40° F in western Montana.

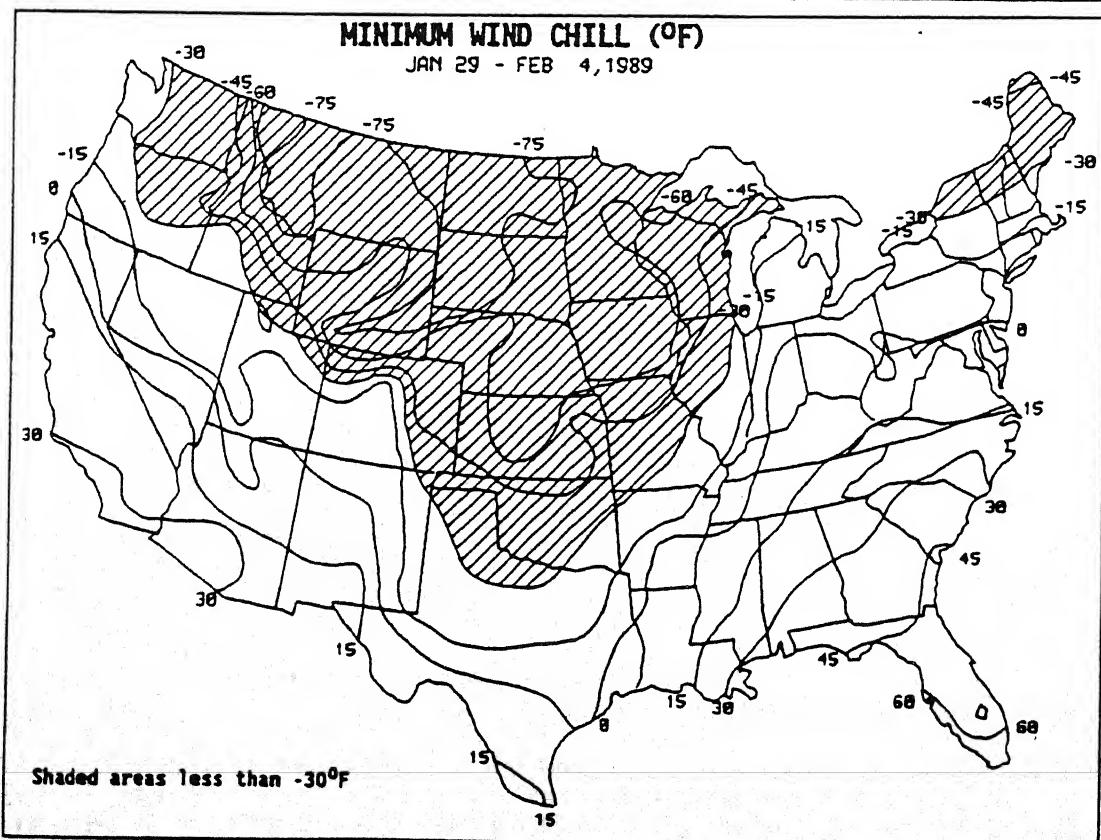
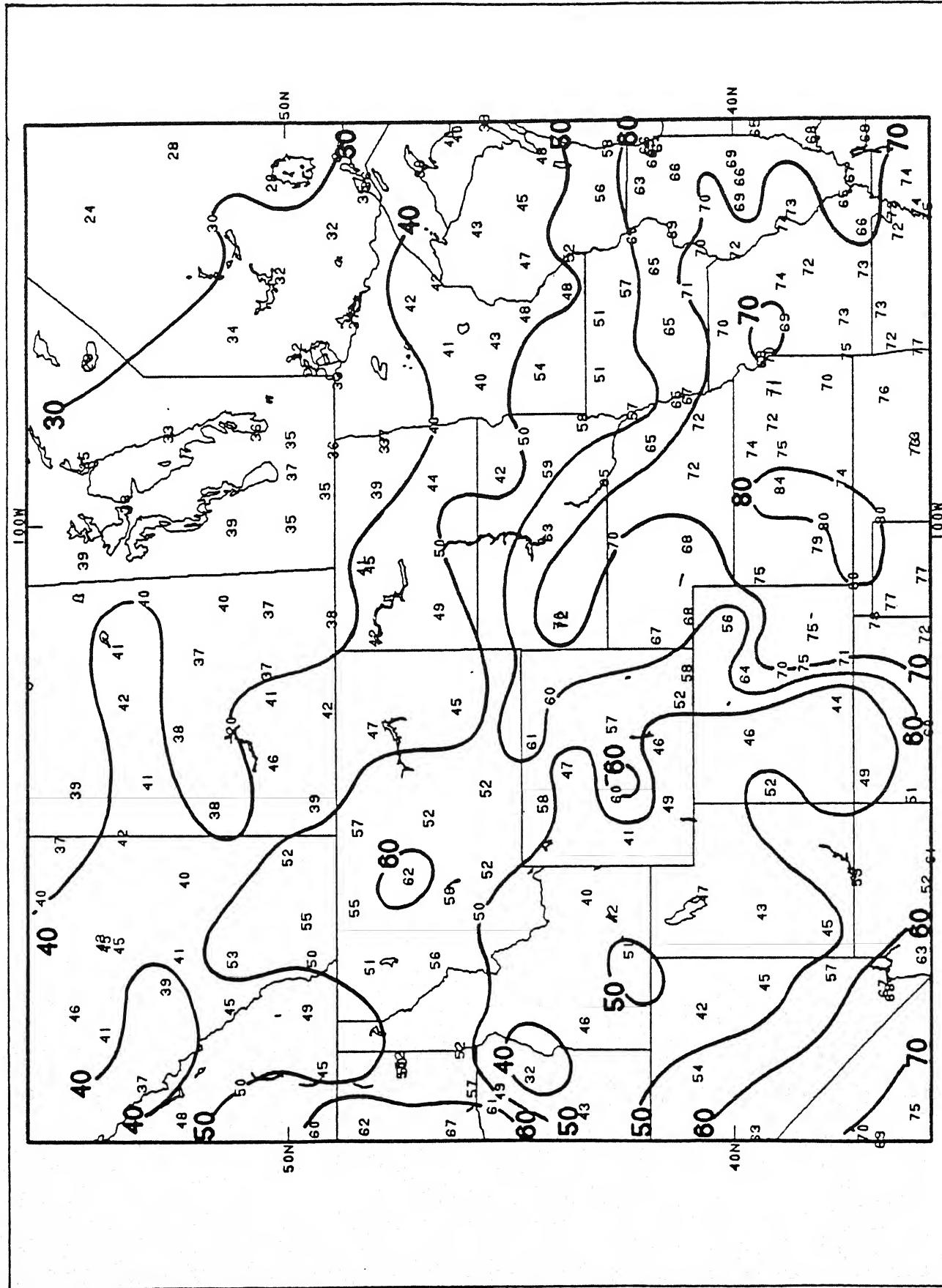
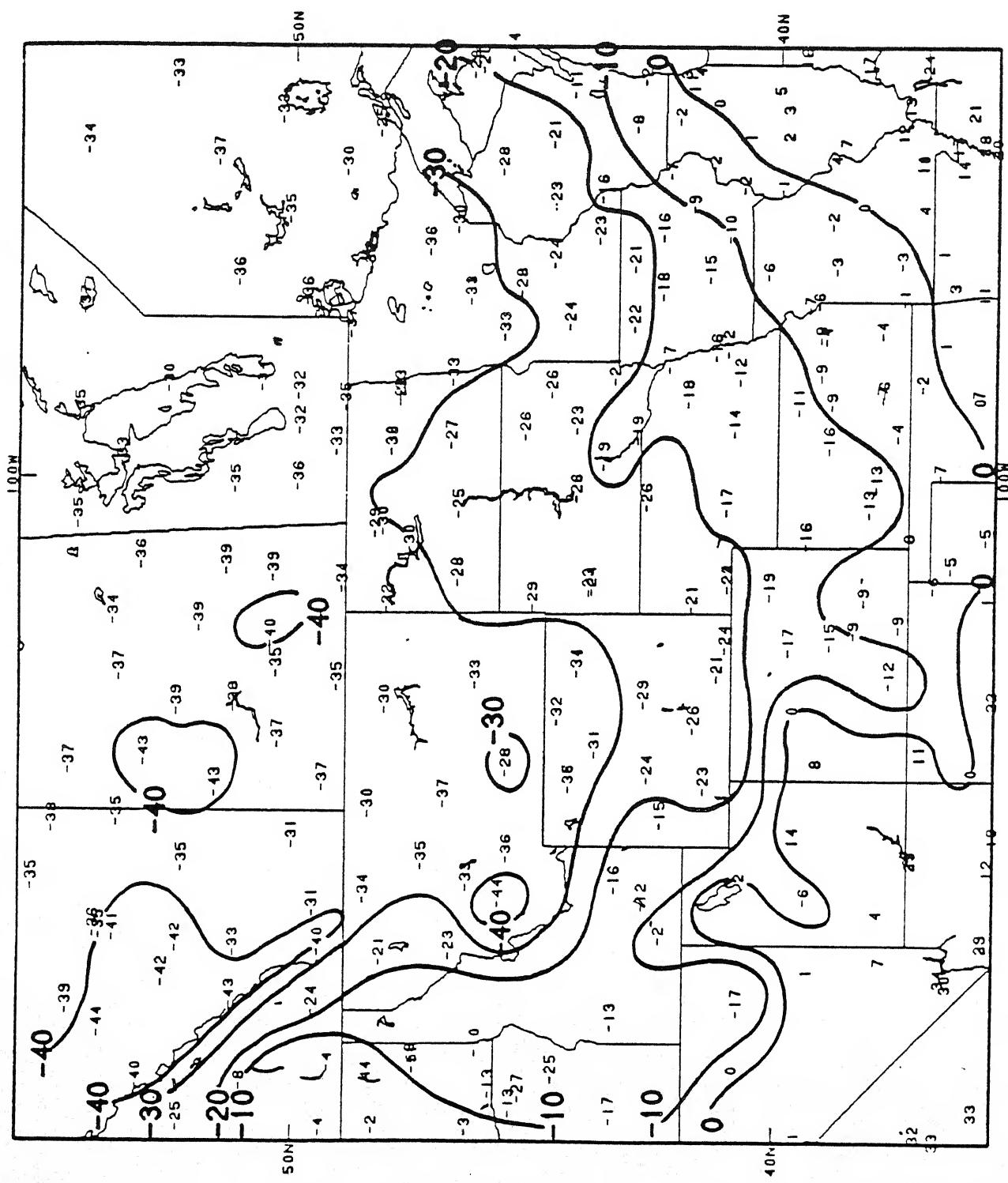


Figure 4. Minimum wind chill ($^{\circ}$ F) during Jan. 29-Feb. 4, 1989. Extremely dangerous wind chills (less than -45° F) occurred throughout the northern Rockies and Great Plains with the combination of gusty winds and subzero temperatures. Wind chills as low as -90° F were found in Montana and North Dakota.

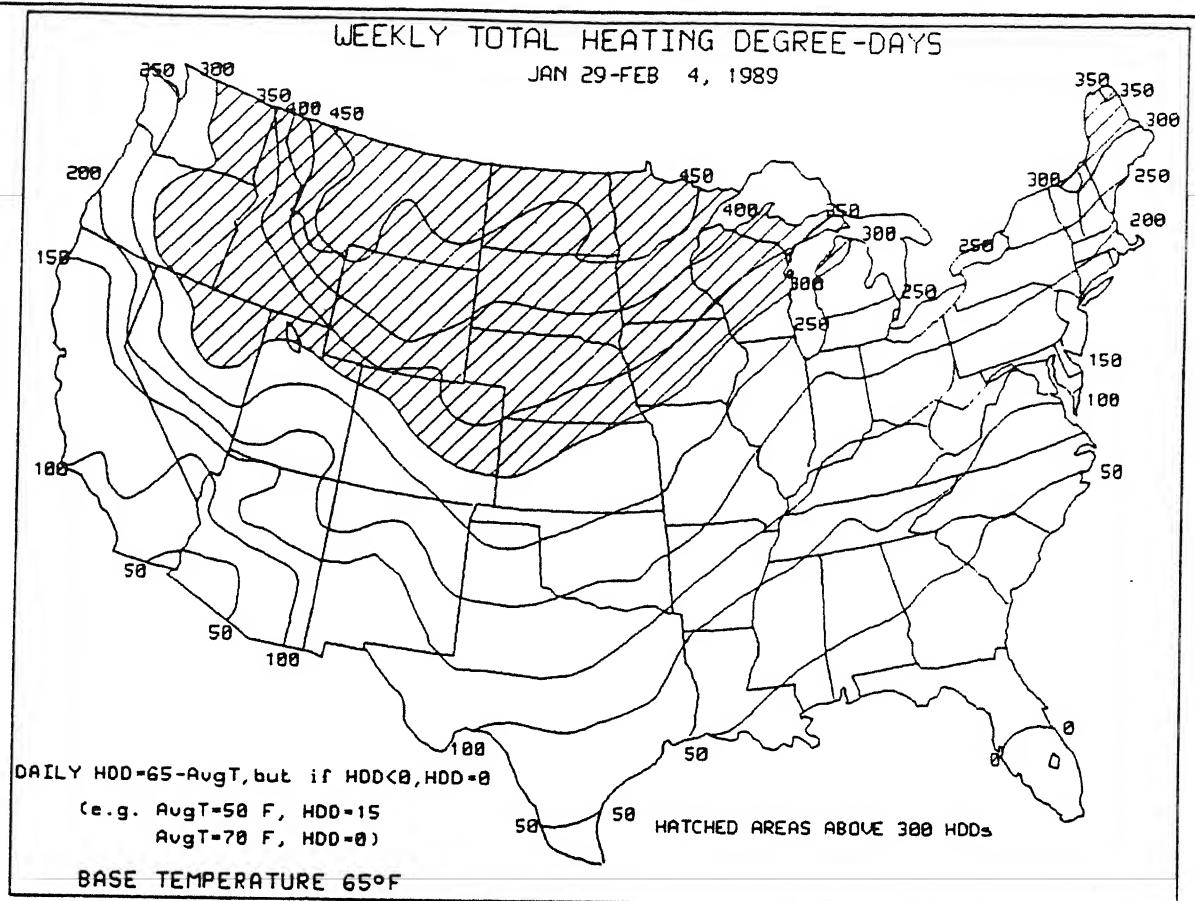
BEFORE THE PASSAGE OF THE COLD FRONT . . .



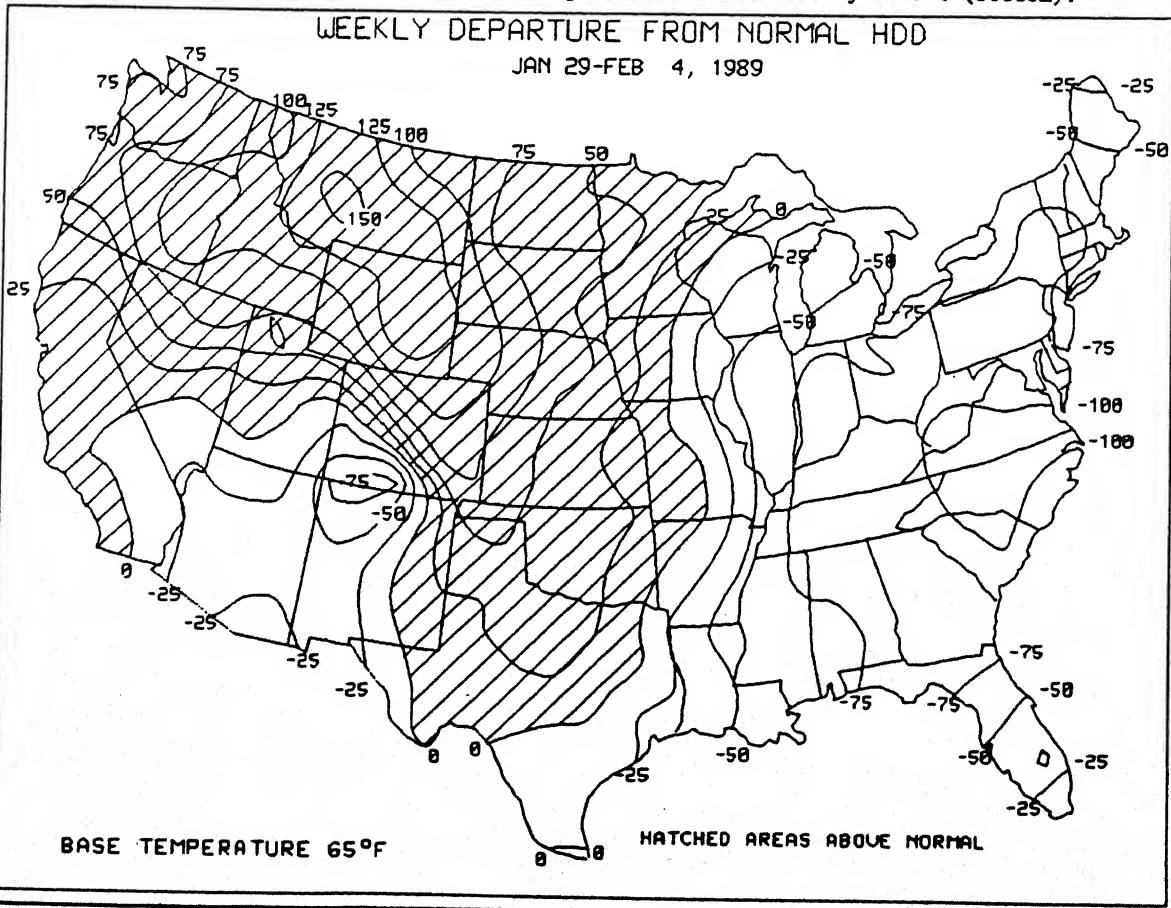
Extreme maximum temperatures ($^{\circ}\text{F}$) during the week of Jan. 29-Feb. 4, 1989. Unseasonably mild weather prevailed across southern Canada and the north-central U.S. early in the week. Compare how much the temperatures plummeted after the bitterly cold air invaded the area on the next page.



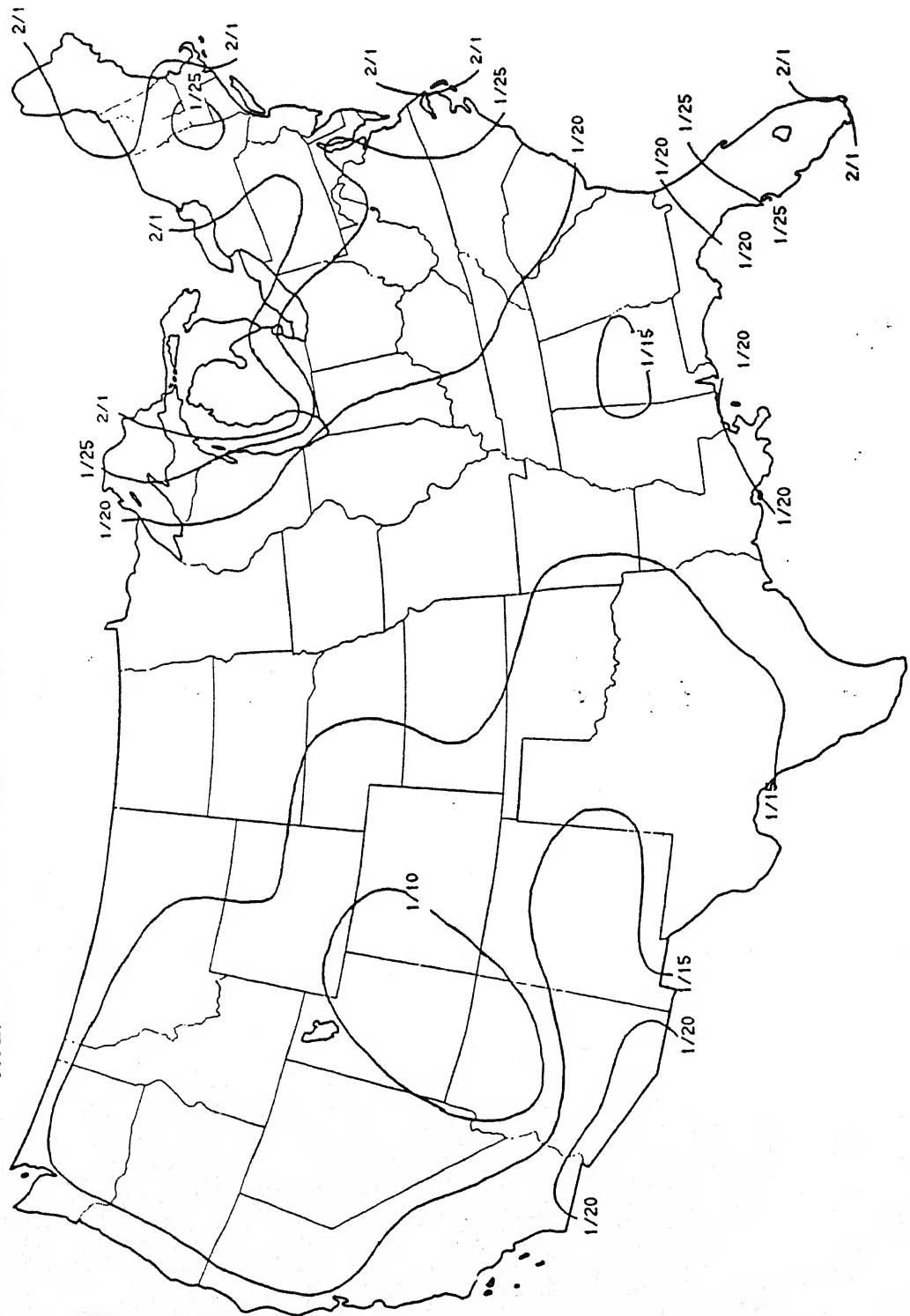
Extreme minimum temperatures ($^{\circ}\text{F}$) during the week of Jan. 29–Feb. 4, 1989. Bitterly cold arctic air from Alaska and northwestern Canada sent subzero readings as far south as the Texas Panhandle. Just a few days earlier, highs in the eighties gave way to subzero lows in Kansas, a difference of more than 90°F (at Russell, KS, a difference of 100°F ; 84°F on 1/31/89, -16°F on 2/3/89).



Large weekly heating usage (>400 HDDs) occurred in the northern Rockies and Great Plains in response to the arctic outbreak (top). Much above normal heating demand was required in the bitterly cold western and central U.S. while mild weather lessened the normal heating demand in the East by 25-50% (bottom).



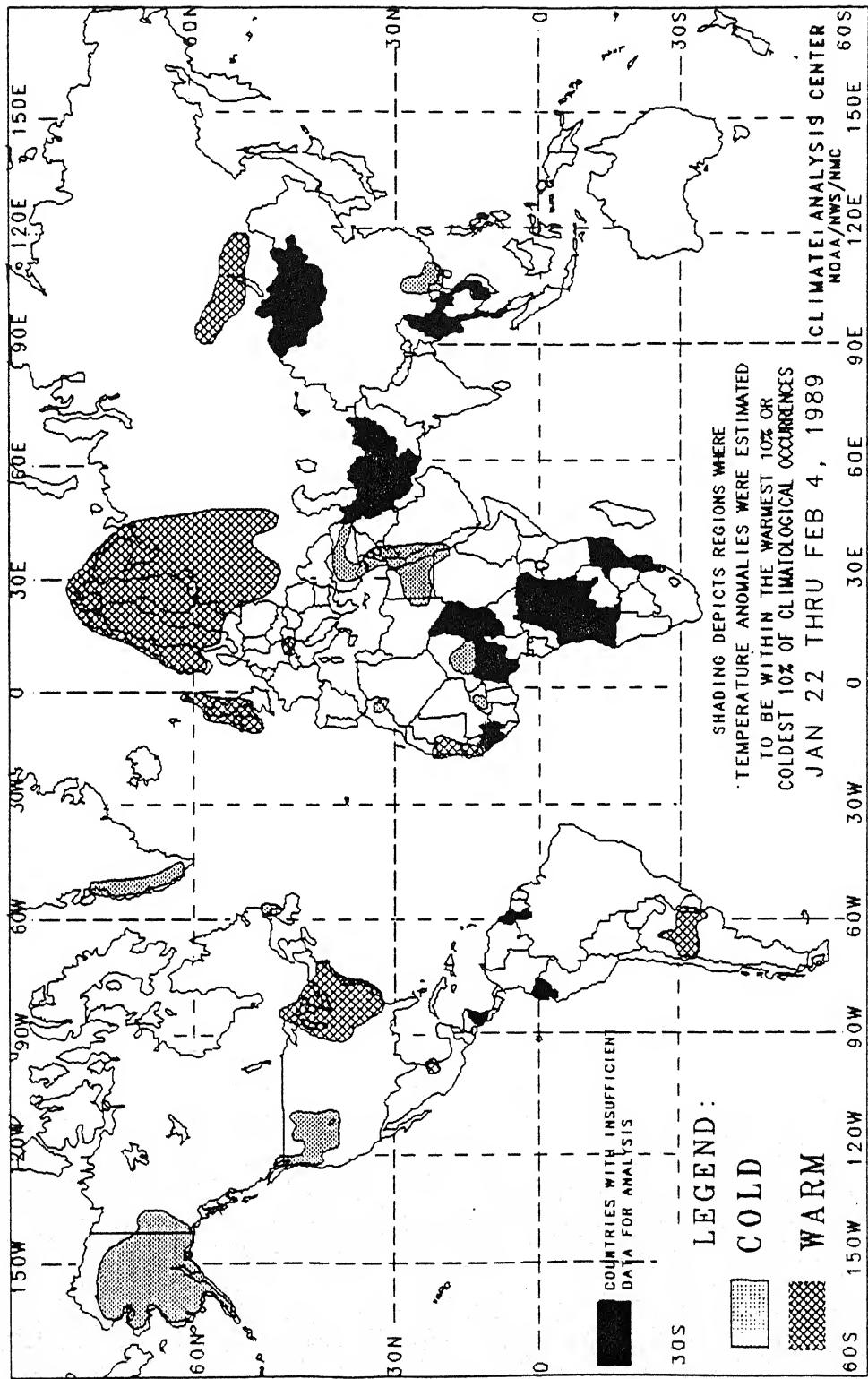
AVERAGE DATE OF LOWEST NORMAL DAILY MINIMUM TEMPERATURE



Based upon the 1951-1980 daily minimum temperature normals from the NOAA's National Climatic Data Center (NCDC), contours of the approximate dates of the lowest normal temperatures were produced. In the West, the coldest readings normally occur during early to mid January. In the South, mid to late January usually has the lowest minimum temperatures, while late January to early February normally is the time that the East and the Great Lakes experiences their coldest lows.

GLOBAL TEMPERATURE ANOMALIES

2 WEEKS

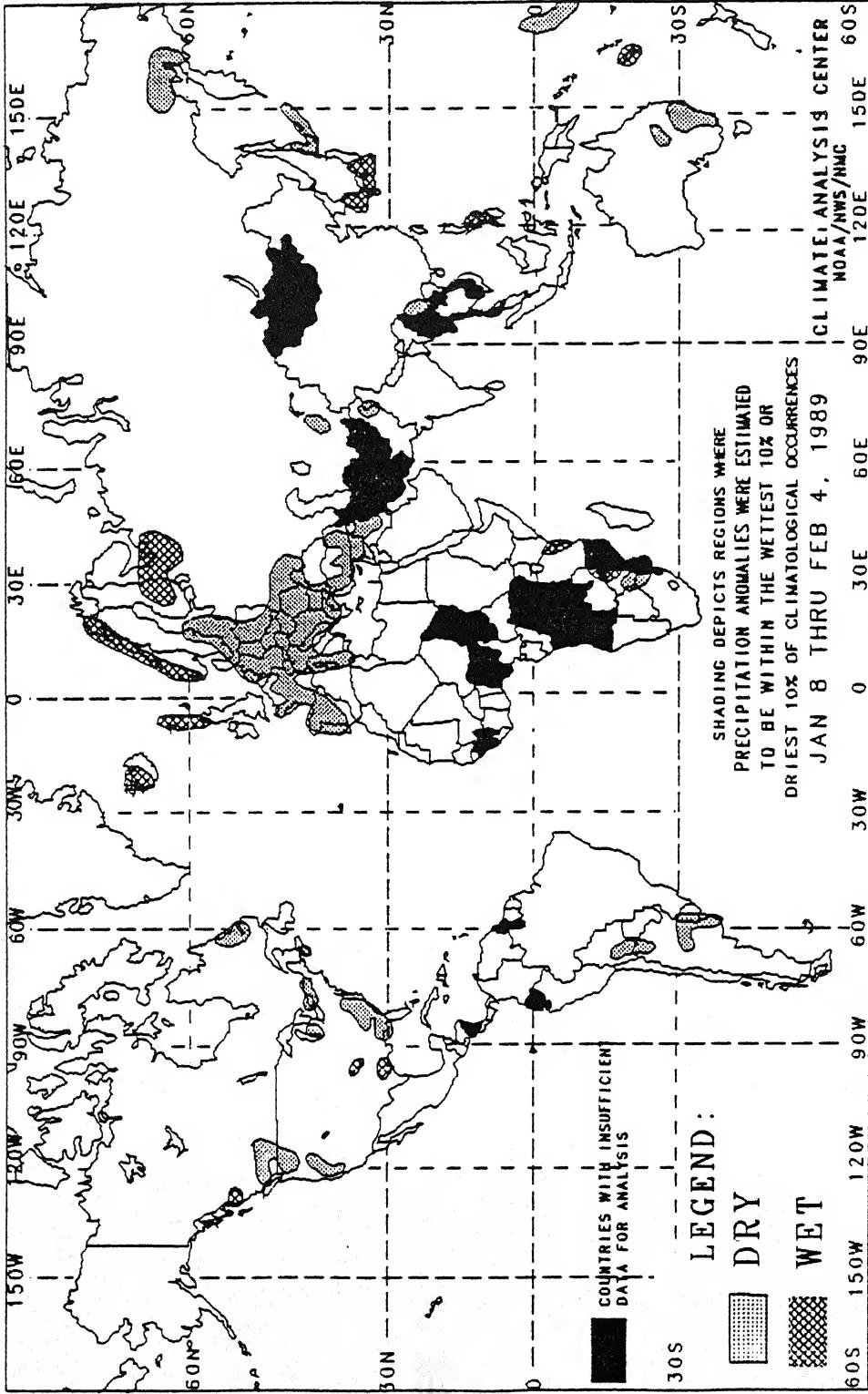


The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, south-western Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

UNITED STATES MONTHLY CLIMATE SUMMARY

JANUARY 1989

In Alaska, unseasonably mild conditions during December were replaced by bitter cold, while early January storminess in the contiguous United States diminished and relatively mild and dry weather prevailed in the eastern two-thirds of the country as the jet stream retreated well north of its normal January track. Early in the month, a storm system moved northeastward out of the southern Rockies and intensified, dropping up to 2 feet of snow on the northern Great Plains. A slow moving cold front triggered severe thunderstorms in the Ohio and Tennessee Valleys as tornadoes were spawned in Illinois, Kentucky, and Indiana. Windy conditions were prevalent on the eastern slopes of the Rockies as Boulder, CO recorded a gust of 115 mph. Later in the month, strong thunderstorms hit Oklahoma and Texas and produced a few tornadoes in east-central Texas. January ended as the bitterly cold arctic air moved southward from Alaska and northwestern Canada towards the lower 48 states. On January 31, a new record high pressure reading of 31.85" of mercury for the western hemisphere was set at Northway, AK, eclipsing previous readings at Northway on Jan. 30 and shattering the old mark of 31.53" at Mayo in the Yukon Territory of Canada in January, 1974.

Excess precipitation occurred across the northern Great Plains, portions of the central and southern Rockies, central Florida, and from southern Texas northeastward to Maryland. In the East, heaviest amounts fell on eastern Texas, northern Louisiana, northern Mississippi and Alabama, and central Tennessee where up to 12.2 inches was recorded in extreme northern Alabama by the River Forecast Centers (see Table 1 and Figure 1). The rains in central Florida and eastern Texas alleviated long and short term dryness in both regions. Most of the precipitation in the northern Great Plains was supplied by the early January snow storm. Bountiful rains also occurred on some of the Hawaiian Islands and along the southeastern coast of Alaska.

Subnormal precipitation occurred for the second consecutive month along most of the Atlantic and eastern Gulf Coasts and in the Pacific Northwest, while meager amounts of precipitation were measured in parts of the central Great Plains (see

Table 2 and Figure 2). In California, concerns for a third straight below normal rainy season (December-February) mounted as many stations recorded less than 25% of their normal January precipitation.

Above normal temperatures prevailed across the entire United States east of the Rockies, in the Pacific Northwest, and in parts of the desert Southwest (see Figure 3) in response to a persistent, upper air trough of low pressure centered over the Far West that brought mild southwesterly flow to the eastern two-thirds of the country. Greatest positive monthly temperature departures (more than +12.0°F) occurred in the western Corn Belt while most of the U.S. east of the Rockies and west of the Appalachians recorded departures of more than +6°F (see Table 3 and Figure 4). Hundreds of stations tied or set new daily maximum temperature records during the month, while 20 stations exceeded their all-time January high temperature (see Table 7). In addition, dozens of locations observed their mildest January ever (see Table 6). Regionally, the National Climatic Data Center (NCDC) ranked January 1989 as the fourth, fourth, and tenth warmest since 1895 (95 years) in the East-North Central (MN, WI, IA, MI), Central (MO, IL, IN, OH, KY, TN, WV), and South (KS, OK, TX, AR, LA), respectively. Overall, the contiguous United States observed the tenth mildest January during the past 95 years.

Below normal temperatures were confined to the West from Arizona and California northward to Oregon and Wyoming (see Figure 4 and Table 4). The Intermountain West has experienced unusually cold conditions since the middle of December. The greatest negative temperature departures were found in northern Nevada and central Utah as monthly temperatures averaged more than 10°F below normal. Bitterly cold weather during the last half of the month displaced the mild conditions of December and early January. Lows plummeted below -30°F at several Alaskan stations (see Table 8). The cold was severe enough to yield monthly mean temperatures of as much as 21°F below normal.

TABLE 1. JANUARY STATIONS WITH MORE THAN 150% OF NORMAL PRECIPITATION AND MORE THAN FOUR INCHES OF PRECIPITATION; OR, STATIONS WITH MORE THAN SEVEN INCHES OF PRECIPITATION AND NO NORMALS.

<u>Station</u>	<u>Total (in.)</u>	<u>Pct of Normal</u>	<u>Station</u>	<u>Total (In.)</u>	<u>Pct of Normal</u>
Hilo/Lyman, Hawaii, HI	27.44	291.6	Shreveport, LA	7.20	179.6
Monroe, LA	9.75	201.4	Daytona Beach, FL	6.82	287.8
Columbus AFB, MS	9.09	***	Port Arthur, TX	6.76	166.5
Muscle Shoals, AL	8.64	167.1	Juneau, AK	6.69	182.3
Jackson, TN	8.29	173.8	Palacios, TX	6.59	254.4
Memphis, TN	7.91	172.3	College Station, TX	6.28	253.2
Houston/Ellington AFB, TX	7.91	***	Galveston, TX	6.25	209.0
Lufkin, TX	7.54	212.4	McAlester, OK	4.90	302.5
Alexandria/England AFB, LA	7.40	165.9	Fort Smith, AR	4.43	240.8
Shreveport/Barksdale AFB, LA	7.34	***			

(Note: Stations without precipitation normals are indicated by asterisks).

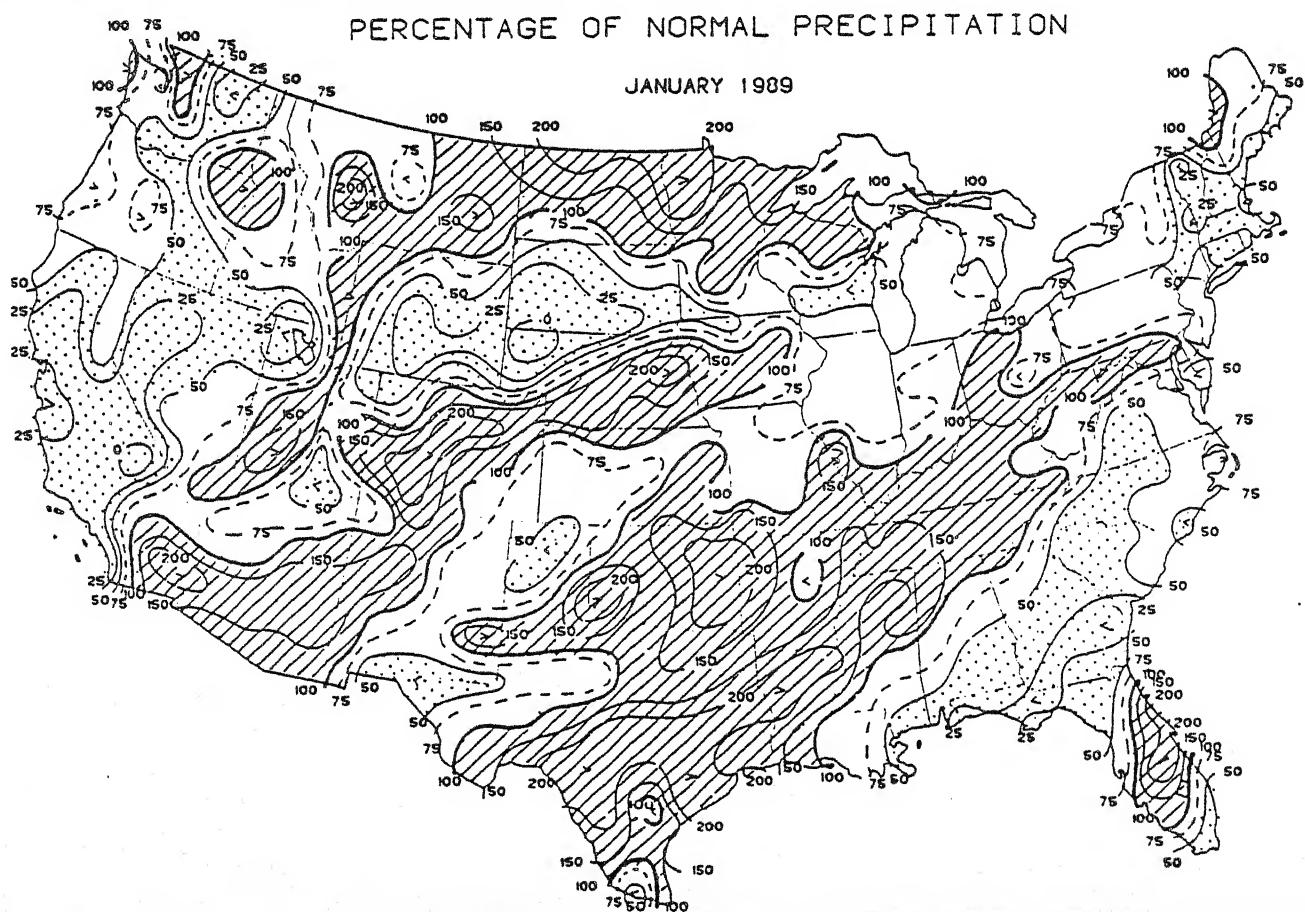


Figure 1. Percentage of normal precipitation for January 1989. Single-lined shading depicts areas with above normal precipitation. Stippling indicates regions with less than one-half the normal rainfall. Wettest conditions were reported in the central United States.

TABLE 2. JANUARY STATIONS WITH LESS THAN 50% OF NORMAL PRECIPITATION AND MORE THAN 3.00 INCHES OF NORMAL PRECIPITATION.

Station	Total (In.)	% of Norm (In)	Station	Total (In.)	% of Norm (In)
Santa Barbara, CA	0.41	10.7	Bridgeport, CT	1.44	44.6
Savannah, GA	0.45	14.6	Biloxi/Keesler AFB, MS	1.50	37.3
Tallahassee, FL	0.47	10.1	Greenville, SC	1.51	35.6
Los Angeles, CA	0.59	19.4	Augusta, GA	1.51	37.9
Boston, MA	0.61	15.4	Brunswick NAS, ME	1.52	41.9
Columbus, GA	0.63	13.9	Salisbury, MD	1.55	45.9
Sacramento, CA	0.67	16.7	Wilmington, NC	1.60	44.0
Hartford, CT	0.88	25.1	Millville, NJ	1.60	49.7
Greensboro, NC	0.93	26.6	Charlotte, NC	1.61	42.6
Macon/Robins AFB, GA	0.98	30.3	Chatham, MA	1.63	37.6
Augusta, ME	1.02	30.6	Bangor, ME	1.71	49.3
Pensacola, FL	1.08	24.2	Hickory, NC	1.72	46.0
Kahului, Maui, HI	1.09	26.9	Macon, GA	1.85	43.4
Rumford, ME	1.09	36.0	Valparaiso/Eglin AFB, FL	1.87	44.5
Worcester, MA	1.11	29.1	Columbia, SC	1.90	43.4
Brunswick, GA	1.13	36.7	Montgomery, AL	2.03	48.6
Portland, ME	1.15	30.6	Athens, GA	2.10	43.5
Providence, RI	1.17	29.0	Mobile, AL	2.13	46.6
Apalachicola, FL	1.24	35.3	Redding, CA	2.14	25.1
San Francisco, CA	1.25	26.9	New Orleans/Moistant, LA	2.47	49.9
Patuxent River NAS, MD	1.32	42.7	Kodiak, AK	2.53	43.9
Raleigh/Durham, NC	1.35	38.1	Seattle-Tacoma, WA	2.78	46.2
Sumter/Shaw, SC	1.38	42.5			
	3.25				

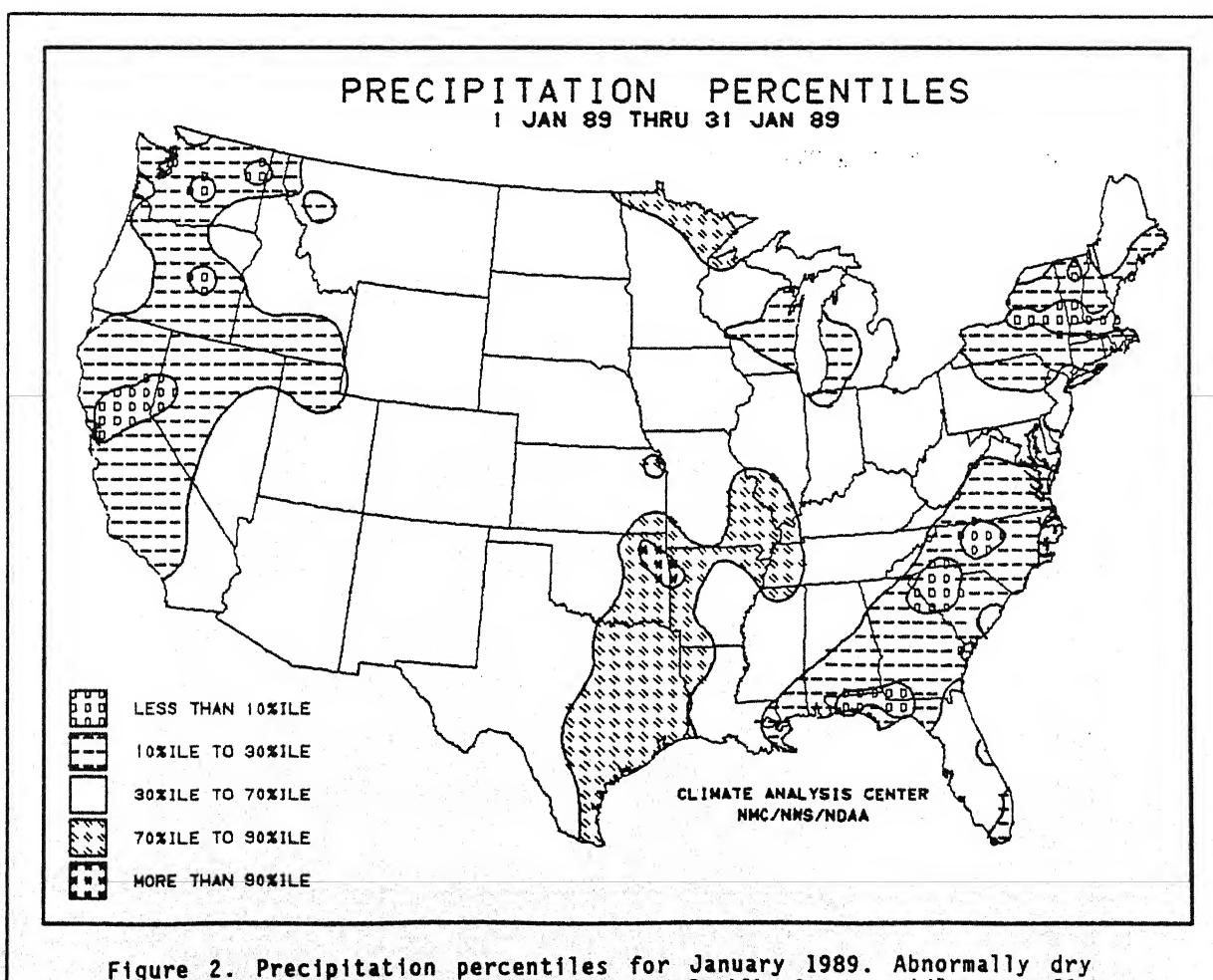


Figure 2. Precipitation percentiles for January 1989. Abnormally dry conditions occurred along both Atlantic and Pacific Coasts, while unusually wet conditions were found in the south central states.

TABLE 3. JANUARY AVERAGE TEMPERATURES 9.0°F OR MORE ABOVE NORMAL.

Station	Deg	F	Station	Deg	F
Ottumwa, IA	+14.3	34.2	Kansas City/Int'l, MO	+10.1	37.8
Des Moines, IA	+13.9	32.5	Indianapolis, IN	+10.1	36.3
Lincoln, NE	+13.7	33.4	Findlay, OH	+10.1	34.4
Sioux City, IA	+13.5	29.8	South Bend, IN	+10.1	33.4
Spencer, IA	+13.1	25.9	Minneapolis, MN	+10.1	21.2
Quincy, IL	+13.0	36.5	Lansing, MI	+10.0	30.5
Moline, IL	+13.0	32.7	La Crosse, WI	+9.9	24.3
Norfolk, NE	+13.0	30.6	Jamestown, ND	+9.8	15.2
Sioux Falls, SD	+13.0	25.5	Columbia, MO	+9.7	38.1
Waterloo, IA	+12.8	27.1	Fort Wayne, IN	+9.7	33.3
North Omaha, NE	+12.6	33.1	Eau Claire, WI	+9.6	19.5
Mason City, IA	+12.3	24.8	Cincinnati, OH	+9.5	38.7
St. Louis, MO	+12.2	41.2	Toledo, OH	+9.5	33.1
Peoria, IL	+12.2	34.0	Valentine, NE	+9.5	27.9
Chicago/O'Hare, IL	+12.1	32.4	Jackson, KY	+9.4	42.6
Huron, SD	+12.1	23.4	Chanute, KS	+9.4	39.2
Rochester, MN	+12.1	21.7	Zanesville, OH	+9.4	36.8
Springfield, IL	+11.9	36.0	Columbus, OH	+9.4	36.7
Grand Island, NE	+11.9	32.7	Dayton, OH	+9.4	36.3
Concordia, KS	+11.7	37.2	Russell, KS	+9.4	36.2
Madison, WI	+11.7	27.7	Flint, MI	+9.4	30.9
Topeka, KS	+11.5	37.9	Cut Bank, MT	+9.4	24.0
Cedar Rapids, IA	+11.5	30.0	Wausau, WI	+9.4	20.5
Dubuque, IA	+11.5	27.3	Joplin, MO	+9.2	41.7
Rockford, IL	+11.3	29.8	Louisville, KY	+9.2	41.5
Green Bay, WI	+11.3	25.5	Evansville, IN	+9.2	40.1
Milwaukee, WI	+11.2	30.4	Cleveland, OH	+9.2	35.1
Kansas City/Muni., MO.	+11.0	39.4	Detroit, MI	+9.2	32.7
Burlington, IA	+10.9	34.8	Park Falls, WI	+9.2	18.7
Salina, KS	+10.6	37.9	Bismarck, ND	+9.2	16.0

DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)
JANUARY 1989

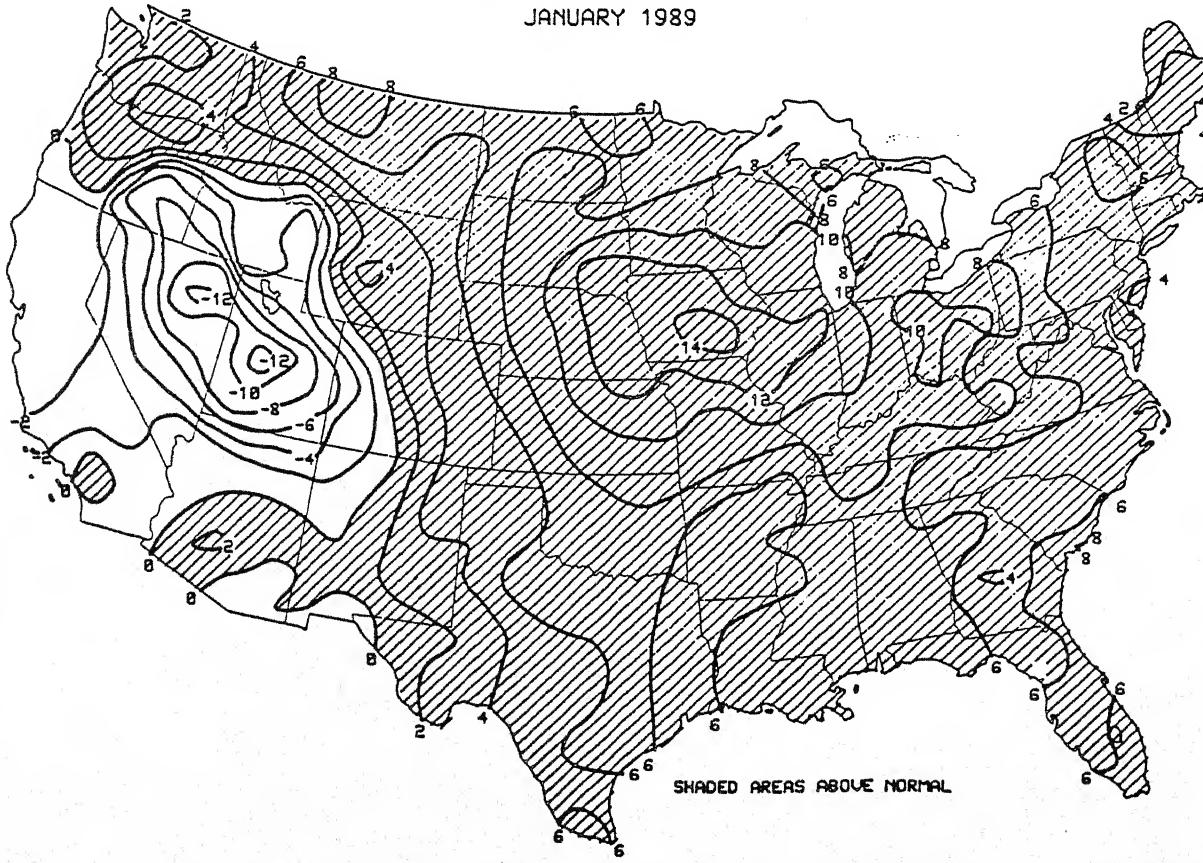


Figure 3. Departure from normal average temperatures (°F) during January 1989. Extensive areas of the country observed above normal monthly temperatures. Unseasonably cold monthly average temperatures were limited to the Great Basin and the Southwest.

TABLE 4. JANUARY AVERAGE TEMPERATURES MORE THAN 4.0°F BELOW NORMAL.

<u>Station</u>	<u>Degrees F</u>		<u>Station</u>	<u>Degrees F</u>	
	<u>Dep</u>	<u>Mean</u>		<u>Dep</u>	<u>Mean</u>
Nome, AK	-21.0	-15.1	Cedar City, UT	-8.8	20.8
Unalakleet, AK	-20.0	-17.4	Anchorage, AK	-8.7	3.7
Iliamna, AK	-18.1	-3.7	Burns, OR	-8.5	19.0
Bethel, AK	-17.6	-12.4	Ely, NV	-7.2	17.4
Aniak, AK	-17.3	-17.9	Winnemucca, NV	-7.2	22.8
King Salmon, AK	-15.0	-2.2	Cordova/Mile 13, AK	-6.5	15.0
Bettles, AK	-14.9	-25.6	Salt Lake City, UT	-6.5	22.3
Talkeetna, AK	-14.5	-5.7	Cold Bay, AK	-6.1	22.3
Big Delta, AK	-13.9	-19.9	Idaho Falls, ID	-5.8	12.9
Elko, NV	-13.3	11.7	Grand Junction, CO	-5.6	20.1
Delta, UT	-12.3	14.3	Boise, ID	-5.4	24.6
Kenai, AK	-11.5	-1.3	St. Paul Island, AK	-5.3	21.3
Homer, AK	-9.9	11.3	Pocatello, ID	-4.5	19.4
Barrow, AK	-9.8	-24.0	Gulkana, AK	-4.4	-12.7
Fairbanks, AK	-9.4	-21.3			

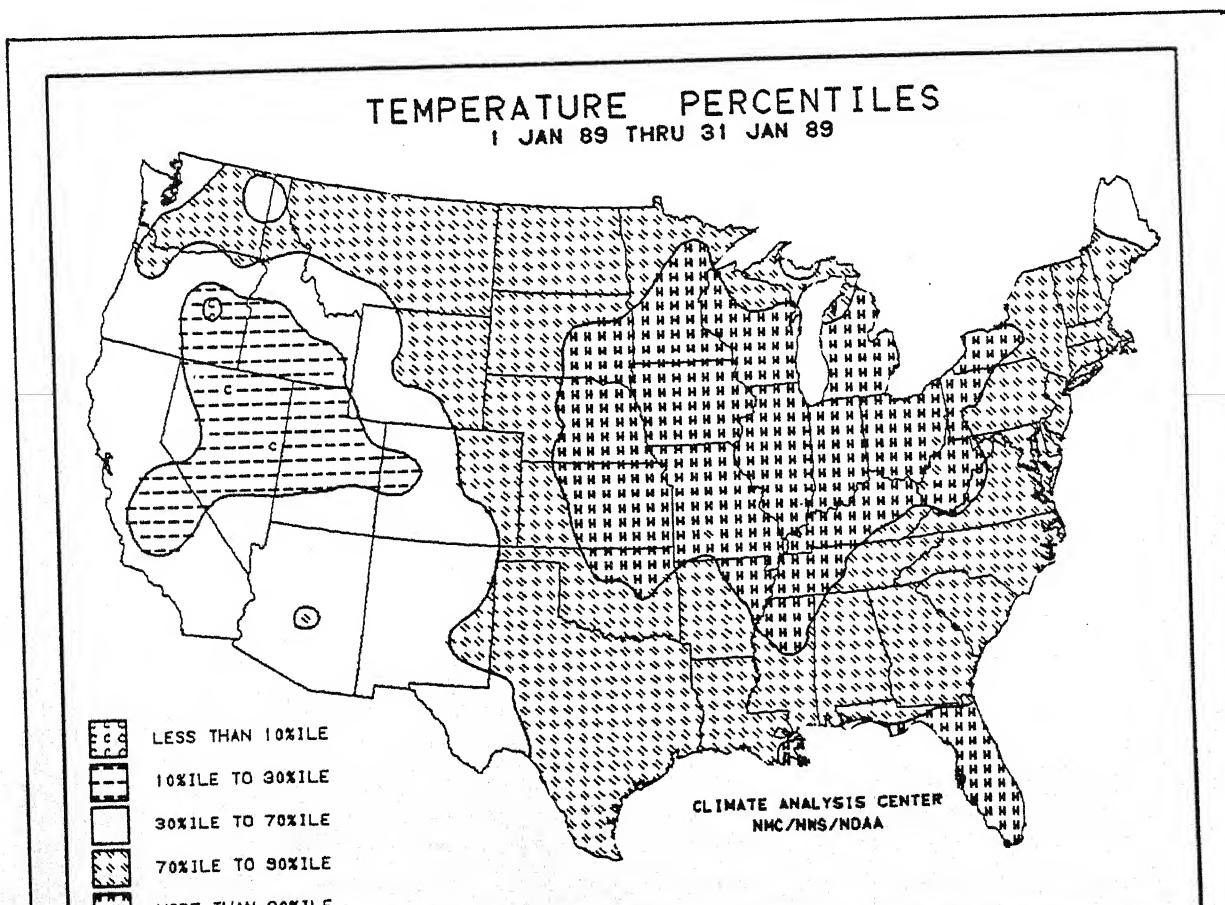


Figure 4. Temperature percentiles for January 1989. Note large areas above 90th percentile in the north central United States and in Florida. The Intermountain West remained significantly colder than normal for the second month in a row.

TABLE 5. RECORD JANUARY TOTAL PRECIPITATION.

<u>Station</u>	Total (In.)	Normal (In.)	Pct of Normal	Record Type	Records Began
Fargo, ND	1.85	0.53	349.1	HIGHEST	1947
Boston, MA	0.61	3.96	15.4	LOWEST	1851
Savannah, GA	0.45	3.09	14.6	LOWEST	1951
Burlington, VT	0.42	1.83	22.9	LOWEST	1882

TABLE 6. RECORD JANUARY AVERAGE TEMPERATURES.

<u>Station</u>	AvgT($^{\circ}$ F)	Nml AvgT	Dep Nml AvgT	Type	Records Began
Tulsa, OK	43.3	35.2	+8.1	HIGHEST	1951
Evansville, IN	40.1	30.9	+9.2	HIGHEST	1951
Springfield, MO	39.6	31.5	+8.1	HIGHEST	1951
Wichita, KS	38.5	29.9	+8.6	HIGHEST	1947
Kansas City/Int'l, MO	37.8	27.7	+10.1	HIGHEST	1947
Dayton, OH	36.3	26.9	+9.4	HIGHEST	1951
Springfield, IL	36.0	24.1	+11.9	HIGHEST	1954
South Bend, IN	33.4	23.3	+10.1	HIGHEST	1944
Fort Wayne, IN	33.3	23.6	+9.7	HIGHEST	1951
Erie, PA	33.1	24.8	+8.3	HIGHEST	1954
Toledo, OH	33.1	23.6	+9.5	HIGHEST	1951
Moline, IL	32.7	19.7	+13.0	HIGHEST	1947
Chicago/O'Hare, IL	32.4	20.3	+12.1	HIGHEST	1959
Flint, MI	30.9	21.5	+9.4	HIGHEST	1951
Muskegon, MI	30.9	23.2	+7.7	HIGHEST	1951
Grand Rapids, MI	30.6	22.5	+8.1	HIGHEST	1947
Lansing, MI	30.5	20.5	+10.0	HIGHEST	1959
Milwaukee, WI	30.4	19.2	+11.2	HIGHEST	1947
Rockford, IL	29.8	18.5	+11.3	HIGHEST	1951
Sioux City, IA	29.8	16.3	+13.5	HIGHEST	1951
Dubuque, IA	27.3	15.8	+11.5	HIGHEST	1951
Waterloo, IA	27.1	14.3	+12.8	HIGHEST	1951
Green Bay, WI	25.5	14.2	+11.3	HIGHEST	1947
Sioux Falls, SD	25.5	12.5	+13.0	HIGHEST	1951
La Crosse, WI	24.3	14.4	+9.9	HIGHEST	1952
Rochester, MN	21.7	9.6	+12.1	HIGHEST	1961
King Salmon, AK	-2.2	12.8	-15.0	LOWEST	1942
Bethel, AK	-12.4	5.2	-17.6	LOWEST	1924
Nome, AK	-15.1	5.9	-21.0	LOWEST	1907
Unalakleet, AK	-17.4	2.6	-20.0	LOWEST	1951

TABLE 7. RECORD JANUARY EXTREME TEMPERATURES.

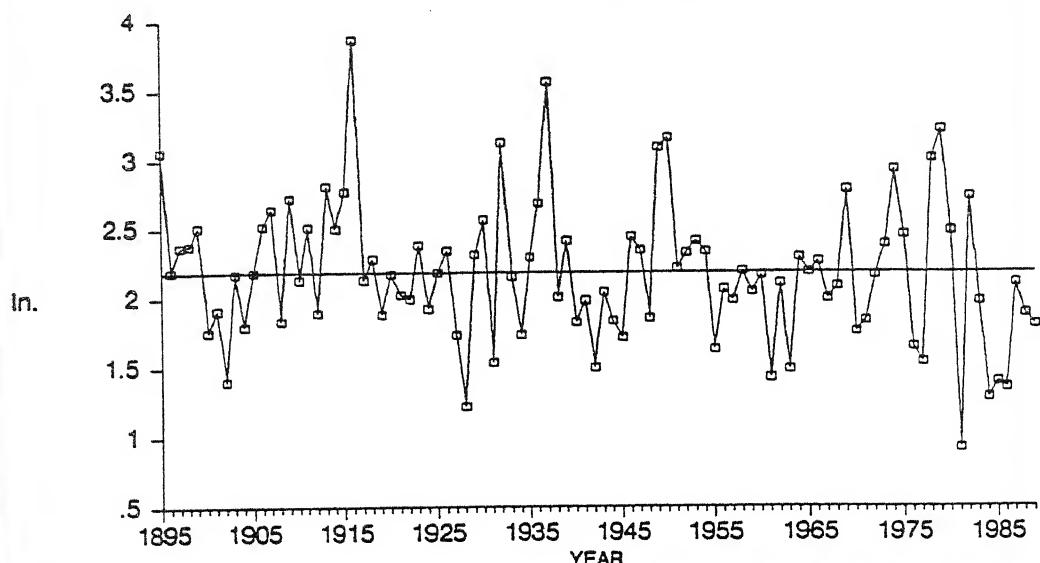
<u>Station</u>	<u>Extreme (Degrees F)</u>	<u>Record Type</u>	<u>Records Began</u>
Tampa, FL	84	HIGHEST	1941
Lake Charles, LA	82	HIGHEST	1962
Baton Rouge, LA	82	HIGHEST	1945
Dodge City, KS	80	HIGHEST	1963
Galveston, TX	78	HIGHEST	1871
Columbia, MO	74	HIGHEST	1969
Concordia, KS	74	HIGHEST	1963
Grand Island, NE	72	HIGHEST	1939
Lincoln, NE	72	HIGHEST	1971
Peoria, IL	70	HIGHEST	1940
Moline, IL	69	HIGHEST	1927
Kansas City/Intl., MO	68	HIGHEST	1972
Chicago/O'Hare, IL	65	HIGHEST	1958
Des Moines, IA	65	HIGHEST	1939
Rockford, IL	63	HIGHEST	1950
Toledo, OH	62	HIGHEST	1956
Great Falls, MT	62	HIGHEST	1938
Madison, WI	56	HIGHEST	1940
Kodiak, AK	-16	LOWEST	1949
Nome, AK	-54	LOWEST	1948

TABLE 8. ALASKAN STATIONS WITH EXTREME MINIMUM TEMPERATURES -30° F AND BELOW

<u>Stations</u>	<u>Ext Min°F</u>	<u>Date</u>
Ft. Yukon, AK	-76	24 Jan 1989
Aniak, AK	-60	28 Jan 1989
Bettles, AK	-60	30 Jan 1989
Nenana, AK	-60	30 Jan 1989
Northway, AK	-60	31 Jan 1989
Big Delta, AK	-58	30 Jan 1989
McGrath, AK	-58	28 Jan 1989
Unalakleet, AK	-58	27 Jan 1989
Nome, AK	-54	28 Jan 1989
Dillingham, AK	-53	28 Jan 1989
Fairbanks, AK	-51	30 Jan 1989
Barrow, AK	-50	25 Jan 1989
Gulkana, AK	-49	22 Jan 1989
Kotzebue, AK	-49	27 Jan 1989
Bethel, AK	-48	28 Jan 1989
King Salmon, AK	-48	28 Jan 1989
Talkeetna, AK	-46	28 Jan 1989
Kenai/Muni, AK	-45	28 Jan 1989
Iliamna, AK	-42	28 Jan 1989
Anchorage, AK	-30	29 Jan 1989

NATIONAL PRECIPITATION

JANUARY, 1895-1989

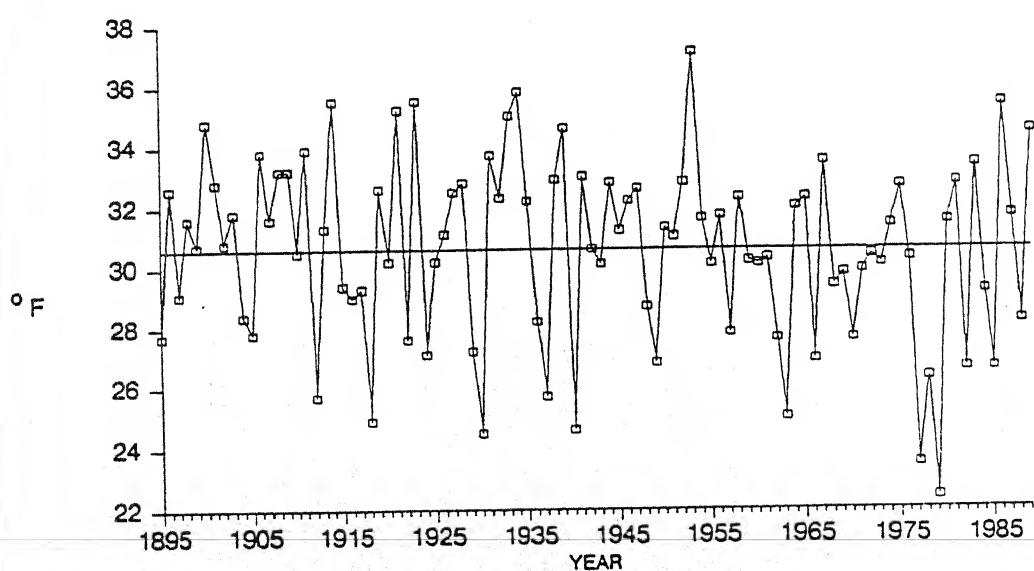


National Climatic Data Center, NOAA

National average precipitation (inches) and average temperature ($^{\circ}$ F) for January 1989 obtained from the NOAA's National Climatic Data Center (NCDC). During the past 95 years, this year was the 20th driest and 10th warmest January in the lower 48 states.

NATIONAL TEMPERATURE

JANUARY, 1895-1989



National Climatic Data Center, NOAA

The data are obtained from the NCDC's cooperative data network. Individual stations are grouped into state climate divisions (344 in the contiguous U.S.) and an average monthly temperature and total precipitation value is calculated. An average state value is then determined for precipitation and temperature from the state values and are area-weighted. A national average for both temperature and precipitation is taken from these area-weighted state values and compared during the past 95 years (since 1895). Some climate division boundaries were different before 1931, but an algorithm was developed to compensate for the discrepancy. The number of cooperative stations has increased from approximately 500 in 1895 to nearly 8000 in 1989. The average (mean) value is depicted in each graph and incorporates the entire time period (95 years).

